

**ATARI® 400™ HOME COMPUTER  
48K RAM EXPANSION KIT**

***INSTALLATION INSTRUCTIONS***

**IMPORTANT:** *This product converts your ATARI® 400™ to 48K of RAM. Professional installation recommended. Do not attempt to install your own 48K RAM expansion board unless you're reasonably handy and experienced in the use of a soldering iron. We do not recommend that children or beginners install this modification. Improper soldering of the four jumper wires included in this kit, or incorrect reassembly of your computer, can result in damage to the computer.*

Read through this entire booklet before attempting to install your expansion board. If you have any doubts about your ability to carry out all the procedures described, it's strongly recommended that you have the installation done by an ATARI Factory Authorized Service Center. Call ATARI Customer Service at the number listed on your warranty card for the location of the Service Center nearest you.

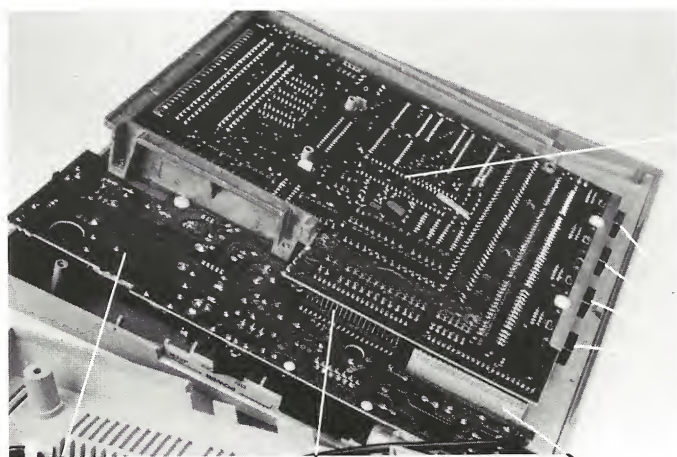
Atari, Inc. shall not be liable for any damage to property or injury to persons resulting from failure to follow the guidelines and installation procedures described in this booklet.

### **Your 48K RAM Expansion Kit includes—**

48K expansion board  
Four precut jumper wires  
(30 AWG)

### **You'll also need—**

Phillips screwdriver  
Wire cutters  
Soldering iron  
Small-gauge resin-core solder  
ATARI BASIC cartridge



POWER SUPPLY BOARD

POWER SUPPLY  
CONNECTOR PINS

KEYBOARD RIBBON  
CONNECTOR

MOTHERBOARD

CONTROLLER JACKS

Photo 1

# INSTALLING YOUR 48K RAM EXPANSION BOARD

1. Disconnect all power to your ATARI 400 computer. Disconnect the computer from your TV. Remove any cartridge that may be in the cartridge slot and close the cartridge door.
2. To remove the plastic casing from the bottom of the computer—
  - a. Set the computer upside down in a clear work area, with the Controller Jacks facing you.
  - b. Remove the four screws securing the corners of the bottom casing.
  - c. As you lift the bottom casing clear, note the position of the TV cable and doughnut-shaped toroid in the back of the unit. Set the casing, bottom side down, to the left of the computer.
3. Slide the speaker connector off the two-pronged plug to the right of the Controller Jacks; remove the speaker and set aside.
4. Remove the eight screws around the perimeter of the flat metal RFI (Radio Frequency Interference) shield; set these screws aside in a group. Lift off the RFI shield, then the paper insulator sheet, and set aside.
5. To remove the mother board—
  - a. Grasp the board just above the row of power supply connector pins (see Photo 1) with your left hand, and at the opposite edge with your right hand; gently lift the board straight up about one half inch until the power supply connector pins disengage from the power supply board (see Photo 1A).

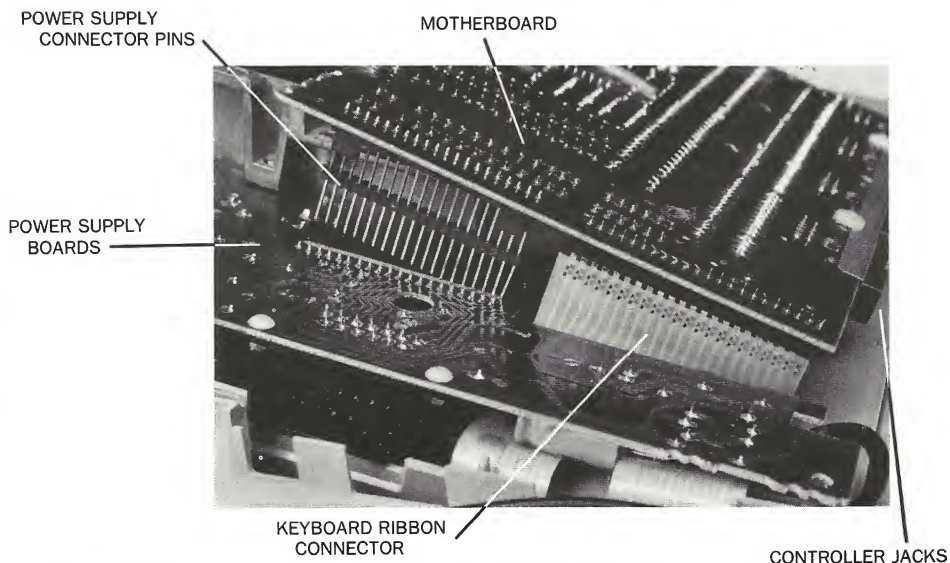


Photo 1A



b. Holding the left edge steady, lift the right side of the mother board until it's perpendicular to your work surface as shown in Photo 2—take care not to bend the power supply connector pins. Now gently disconnect the keyboard ribbon connector (see photo 2A) from the mother board.

c. Set the mother board, solder side down and with the Controller Jacks facing you, in a clear work area.

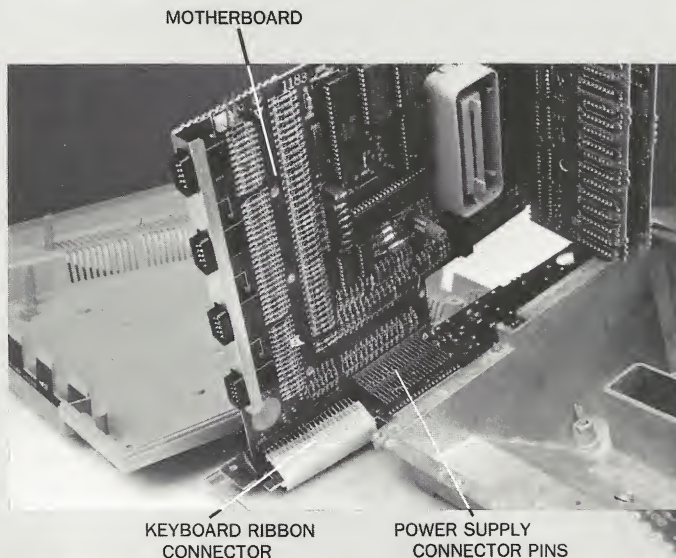


Photo 2

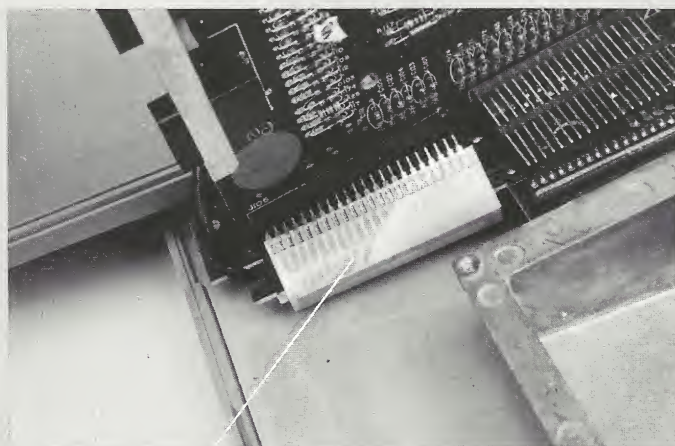


Photo 2A

6. Remove the RAM and CPU boards from their slots in the mother board (see Photo 3) and set aside. Taking care not to bend the power supply connector pins, turn the mother board over and place it on a steady work surface, solder side up and with the Controller Jacks facing you.

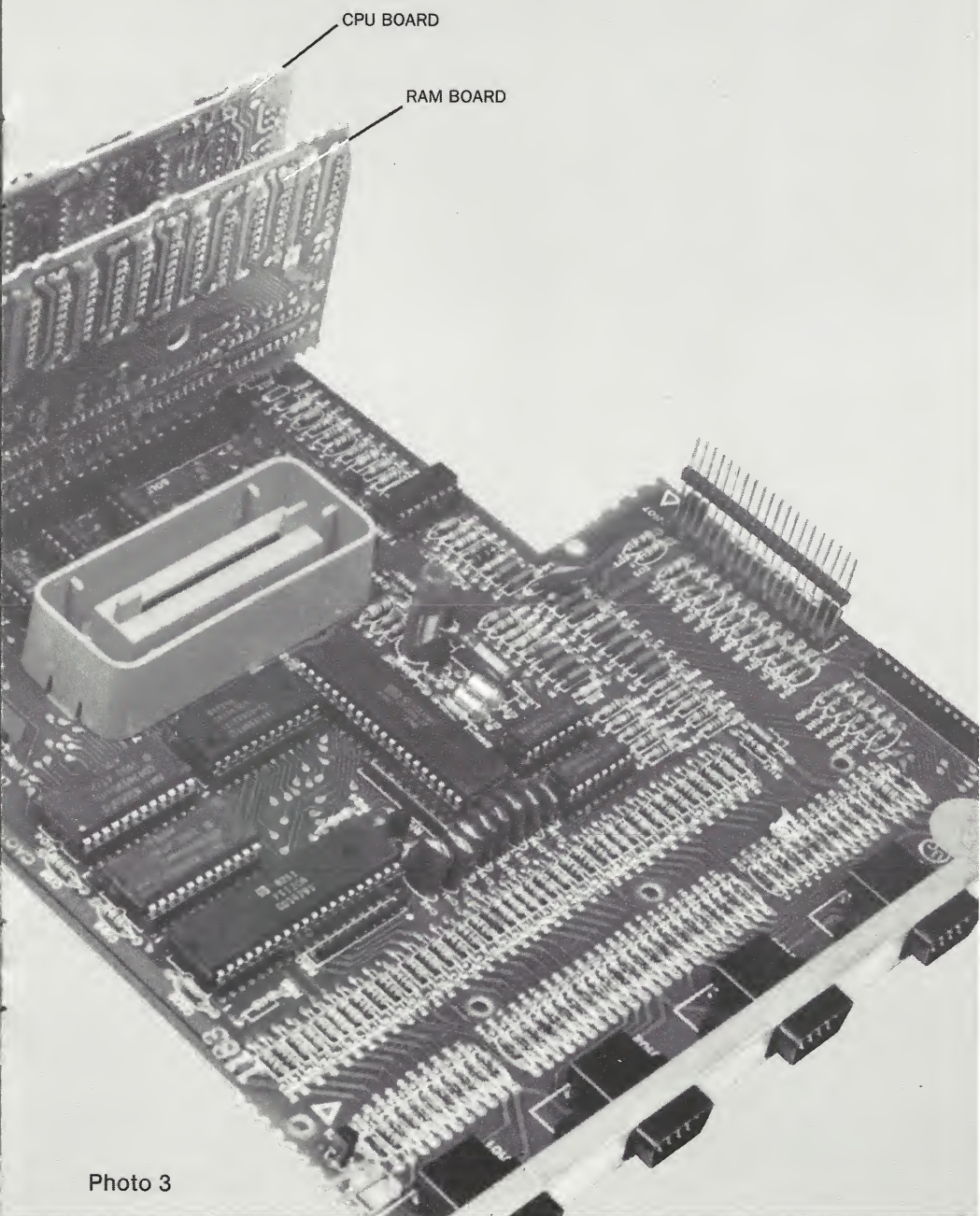


Photo 3



7. Solder the four precut jumper wires in place on the mother board as shown in Photos 4 and 4A.

**CAUTION:** Unless you're adept at the fine soldering required in electronic circuitry, it's recommended that you leave this step to an experienced technician.

The jumpers connect the following pins:

J108-1 to J109-R

J108-A to J109-T

J108-12 to J109-N

J108-14 to J109-M

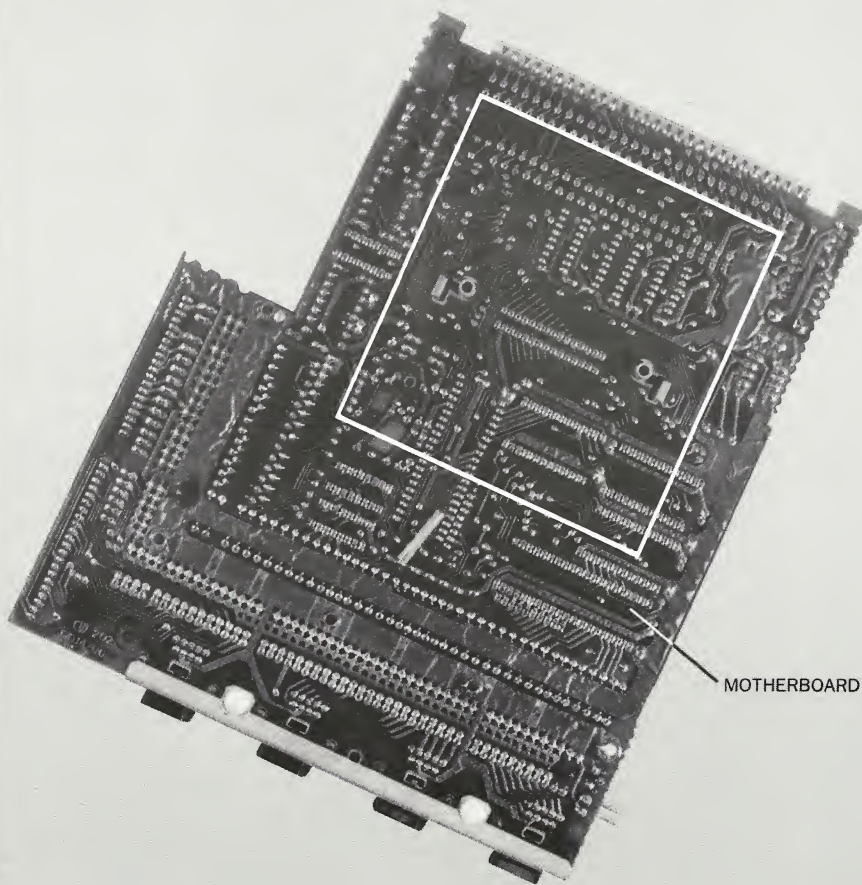


Photo 4

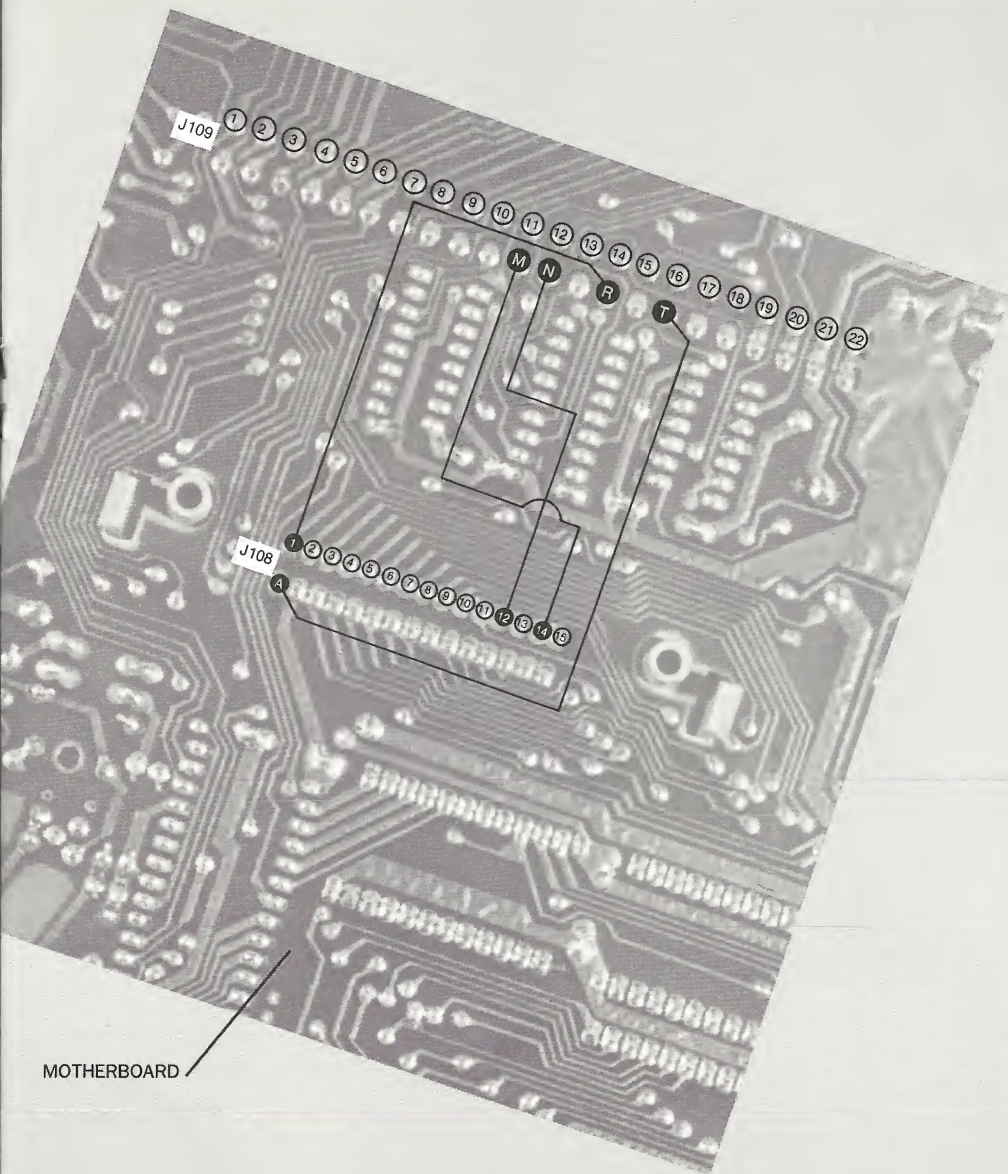


Photo 4A (CLOSE UP)

8. Turn the mother board over once again, solder side down and with the Controller Jacks facing you. Replace the CPU board in its original (rear) slot and install your new 48K RAM expansion board in its slot, both solder side forward.

9. Locate the plastic spacer in the bottom of the well-shaped metal RFI casing, as shown in Photo 5. If your unit has a spacer other than the one shown, skip to step 10. If the spacer looks like the one shown—

- a. Remove the spacer by prying it loose from the RFI casing—it's secured by double-sided tape.
- b. Using a pair of wire cutters, trim the two end flanges on the spacer as shown in Photo 6.
- c. Replace the spacer in the RFI casing.

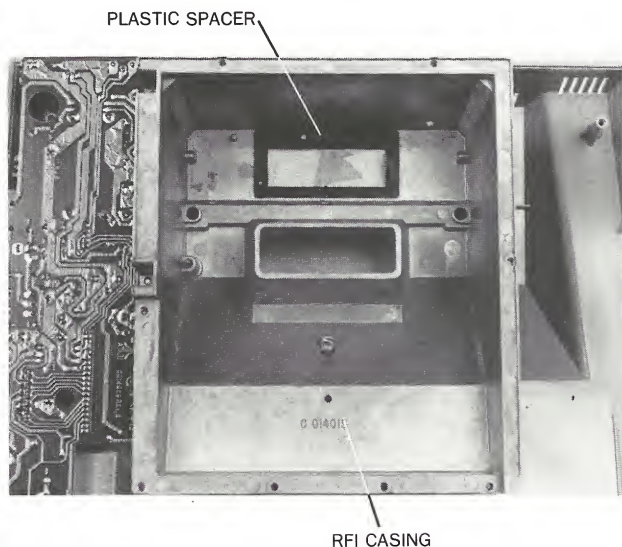


Photo 5

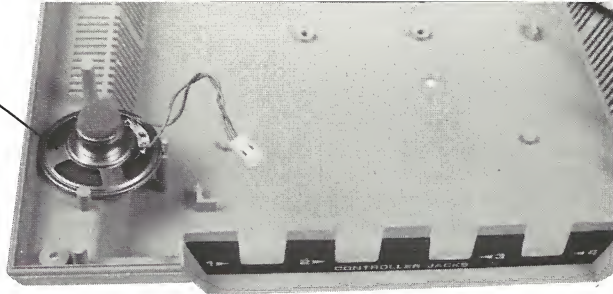
TRIM AS SHOWN



Photo 6



SPEAKER



CONTROLLER JACK PORTS

Photo 7

10. To replace the mother board—

- a. First reconnect the keyboard ribbon connector to the mother board (see Photo 2A, page 3).
- b. Carefully reseal the power supply connector pins in the power supply board (see Photo 1A, page 2).
- c. Replace the paper insulator sheet and screw the flat metal RFI shield in place.

11. To replace the speaker and reassemble your computer—

- a. Seat the speaker among the three plastic posts in the bottom casing of the computer, as shown in Photo 7.
- b. Holding the top portion of the computer a few inches above the bottom casing, reconnect the speaker connector to its two-pronged plug.
- c. Taking care to place the TV cable and doughnut-shaped toroid behind the RFI casing, seat the top portion of the computer snugly against the bottom casing.
- d. Turn the unit over and replace the four screws securing the bottom casing.



AFTER

## CHECKING OUT YOUR 48K RAM EXPANSION BOARD

To verify that your expansion board has been installed correctly and is working properly, first reconnect your computer to a power supply and to your TV, then turn on the computer. Check the screen for the message ATARI COMPUTER — MEMO PAD.

Next, insert an ATARI BASIC cartridge in the cartridge slot. When the READY prompt appears, type `PRINT FRE(0)` and press RETURN. The computer should display 37902 on your screen. This figure shows that you now have about 37K of free memory—the rest of the 48K available with your new RAM expansion board is being reserved for the BASIC cartridge and the ATARI Operating System.

If your computer fails to display either the MEMO PAD message when first turned on, or the figure 37902 when you insert BASIC and type `PRINT FRE(0)`, go back through the installation procedures described in this booklet. Check the location and soldering of the four jumper wires (see Photo 4, page 5) with special care and, if necessary, resolder. After reassembling your computer, repeat the verification procedures described here.

If you still have problems, contact an ATARI Factory Authorized Service Center or call ATARI Customer Service at the number listed on your warranty card.

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